

3. Express the following inequality statements algebraically:

- (a) w is more than 37, [1]
- (b) x is smaller than twice y , [1]
- (c) z is at least 23. [1]

3. Copy the statements below.

Then write the symbol $<$, $>$ or $=$ in each space to make each statement correct.

- (a) 3^2 _____ 2^3 [1]
- (b) 3^0 _____ 2^0 [1]
- (c) 3^{-1} _____ 2^{-1} [1]

3. (a) Write the following in standard form (scientific notation).

(i) 7,564,000,000,000 [1]

(ii) 0.0000918 [1]

- (b) Jupiter has a volume of approximately $1.43 \times 10^{15} \text{ km}^3$.
The volume of Neptune is approximately $6.25 \times 10^{13} \text{ km}^3$.
How many times bigger is Jupiter than Neptune? Give your answer in standard form. [2]

3. Simplify:

(a) $\frac{x}{5} + \frac{7x}{3}$ [2]

Fraction after applying Lowest Common Denominator

_____ + _____

Simplified Fraction

(b) $\frac{45g}{8} \div \frac{15g^2}{24}$ [3]

Fraction after applying Reciprocal

_____ $\times$ _____

Simplified Fraction

3. There are several t-shirts on a rack in a store.

$\frac{2}{3}$ are white.

$\frac{1}{8}$ are pink.

All the remaining t-shirts are blue.

- (a) Find the fraction of t-shirts that are blue. [2]

Fraction of Non Blue Shirts

$$\underline{\hspace{1cm}} + \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$$

Fraction of Blue Shirts

$$1 - \underline{\hspace{1cm}} = \underline{\hspace{1cm}}$$

There are 20 blue t-shirts on the rack.

- (b) Find the total number of t-shirts on that rack. [2]

3. Shay is paid \$2,520 per month.

She pays the following bills:

- ☐ \$ 650.00 rent monthly
- ☐ \$ 210.00 utilities monthly
- ☐ \$ 140.00 groceries weekly

- (a) For a month with four weeks, determine how much money is left after all these bills are paid. [3]

Total Spent = \$

Total Remaining Funds = \$

She sets aside 15% of her remaining pay for entertainment.

- (b) Calculate her entertainment budget per month. [1]

3. The centre of the Milky Way galaxy is 25,800 light-years from Earth.

1 light-year = 9.461×10^{12} kilometres.

For this problem give all answers in standard form correct to three significant figures.

- (a) Find the distance in kilometres (km) between the Earth and the centre of the Milky Way. [2]

Distance before Rounding = $\times 10$

Distance after Rounding = $\times 10$

The fastest speed obtained by a man-made spacecraft is 586,000 km/h.

(b) Find the time in hours needed to travel one light-year.

[3]

Time before Rounding = **× 10**

Time after Rounding = **× 10**